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ABSTRACT

This is one of a series of reports based on an ongoing reality test of systemic evaluation for instructional decision making. This feasibility study is being carried out by the Center for the Study of Evaluation with the Laboratory in School and Community Relations at a suburban Los Angeles high school (called Site A). Viewing a school as a cultural/ecological system, systemic evaluation is a set of principles to guide local development of processes to gather, organize, and utilize information relevant to the needs and values of the system and its members. This paper discusses the potential abuses of comprehensive, school-oriented information systems. There are at least three issues that must be addressed if the systems are to be used by and for people instead of against them: (1) intimately involving people in developing the purposes, contents and uses of the systems; (2) developing timely, relevant, and straightforward techniques for bringing information to bear upon practice; and, (3) creating a climate of mutual trust and responsibility for generating and using information. (BS)

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USING VS. BEING USED BY SCHOOL INFORMATION SYSTEMS

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For the past dozen years, I have spent most of my professional work life thinking about, writing about, and using comprehensive data bases on schools and schooling. About two thirds of this time was spent working with John Goodlad and my other colleagues on A Study of Schooling--a study that attempted to develop a comprehensive, data-based description of what goes on in schools and how people feel about it--all in an effort to draw some working hypotheses about how things might happen differently (Goodlad, 1983). More recently, a few colleagues and I at the Center for the Study of Evaluation and at the Laboratory in School and Community Education have paused to reflect upon the role of comprehensive data-bases, less from the standpoint of doing a research study across schools, and more with an eye towards how information can be used for local school improvement and change.[1]

I note this brief, personal history only to support my commitment to the whole idea of comprehensive, school-oriented information systems. Yet as excited as I am about the potential use of the idea, I am worried about the potential of its abuse. It seems increasingly clear to me how people can use school information systems. And it seems increasingly clear how such systems can use people. If the latter turns out to be more the rule than the exception, I will be looking to become involved in a different line of educational inquiry.

To be more specific about my worries, I would like to divide the subsequent remarks into three categories: 1. inquiry and the role of information, 2. humanizing data, and 3. accountability vs. responsibility.

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The first category is really preeminent with the latter two categories being corollaries of the position being taken on information systems.

Inquiry and the Role of Information

At the outset, it is important to clarify the perspective underlying the kind of "information system" that I and my colleagues have envisioned. We would not characterize it as a district-driven, "management information system" exclusively (or nearly exclusively) oriented around monitoring achievement, i.e., norm- and/or criterion-referenced test score results. Rather, what we have in mind is more of a school-based, inquiry-driven system of information to be collected and used formatively in the process of school improvement.

It is virtually impossible to do justice to the ideas embedded in this view of information system in this short report. My hope is that those of you interested in these ideas well look at the reports referenced in this paper. All I can do here is summarize in shot-gun fashion some core concepts:

1. Outcome indices have limited value, beyond their immediate, descriptive signal, for helping direct an agenda for school improvement. Certainly I am not suggesting that assessing student achievement is unnecessary. Rather, I am suggesting that test scores alone are an insufficient basis for action.

2. What is further necessary is relevant information on the circumstances, activities and meanings associated with the schooling process. By "circumstances," I mean the whole array of structures, situations, and physical features in the school (condition of building, teacher-student ratio, student tracking policy, materials and resources, and so forth). By "activities," I mean the behaviors and processes that constitute the practice of schooling (staff decision-making, classroom teaching strategies, student socialization patterns and so forth). By "meanings," I mean the understandings that people infer from and bring to bear upon schooling (orientations like feelings, opinions, attitudes, beliefs and values are included here as well as any other indicators of meaning--test scores for example).

3. The criteria for relevance are based upon the perceived needs of the significant "actors" in the setting (e.g., administrators, teachers, students, parents) and the inherent value systems through which these perceptions are filtered.

4. Information systems, as knowledge producing and using processes, must reflect the variety in:

   a. types of information, e.g., cognitive, affective, contextual.

   b. commonplaces (Goodlad, 1979) of schooling, e.g., physical environment, human resources, material resources, organization, communication, problem-solving/decision-making, leadership, issues/problems, controls/restraints, expectations, climate, and curriculum. Curriculum is to be interpreted broadly and should include at least these additional commonplaces: goals/objectives (academic, personal, social, career), content, instructional materials, classroom activities, teaching strategies, assessment of student learning, use of time and space, and grouping strategies.

   c. domains of information, e.g., individual, class, team/grade/department, school, district, community.

   d. sources of information, e.g., students, teachers, administrators, parents, observers, documents.

   e. methods for collecting information, e.g., tests, surveys, observations, interviews, case studies, historical analyses, document reviews.

I have tried to pack most of these features into Figure 1 which is offered as a heuristic for suggesting the depth and breath of potential school information. (Note also that Figure 1 represents just one slice out of many possible along the pre-school, K-12, post-secondary continuum.)

With these concepts as a backdrop, I can now be more explicit regarding the theme of this paper: people using or being used by information systems. There is a fifth and most important concept to be added to the above list:

5. Information systems, as knowledge producing and using processes, must be multi-paradigmatic, embracing the tensions between these alternative inquiry perspectives:

   a. Empirical analytic methods that place a premium on explanation via predictive relationships between quantified constructs.

   b. Naturalistic/phenomenological methods that place a premium on understanding via qualitative interpretations of social settings.

c. Critical/dialectical methods that place a premium on informed discourse, values clarification, and action.

Thus, a district or school seriously bent upon sustained improvement and change efforts will need to involve school staff in the collaborative pursuit of understanding--What goes on in their school(s)? How did it come to be that way? What are the social, political and economic interests that constrain the setting? Reconciling the various phenomenological views of the setting and approaching a working consensus on problem areas should always the first order of business. As the dialogue proceeds, it will become evident that much information is needed--information that can be determined through various operational devices (e.g., surveys, tests, observations) or information that is already available (e.g., school records) but needs to be organized and disseminated. Only when information is perceived as useful, should information systems be conceived for use.

To summarize, information as knowledge is not an end in itself but is, instead, a catalyst for evaluative discourse and action; inquiry and information need to be legitimized as natural and on-going parts of the daily work life of those for whom the knowledge is to be relevant.

Humanizing Data

Many professional and lay persons both inside and outside of the educational research and schooling communities have never been enamored with the notion of quantifying the meaning of circumstances and events in social settings. To exacerbate matters further, the exponential rise of high technology has propelled us into an "age of information." The only way to escape being "computerized" is to disenfranchise oneself from economic life. My guess is that these societal changes, coupled with past sentiments regarding "research-type" activities, will make those people

identified as potential data sources even less sanguine--and more cynical and suspicious--regarding the benefits of the kind of comprehensive information systems being described.

Picking up on the theme from the previous section, a crucial ingredient required to overcome this concern is the cultivation of an attitude towards information that makes it an intrinsic part of an organizational environment that legitimizes professional inquiry by allocating quality time to the effort. But there are a few other, more mundane ingredients having to do with attitudes toward and techniques of measurement and data analysis.

Perhaps the most important problem in measurement is to overcome two kinds of attitudes that tend to polarize people into either of two belief "camps," described by Kaplan (1964) as adherents of either the "mystique of quantity" or the "mystique of quality." The extreme position in the former camp is embodied in the expression, "If you can't measure it, that ain't it." And the opposite extreme in the latter camp--"If you can measure it, that ain't it."

As with all false dichotomies, the truth is somewhere in between and is rooted pragmatism. It is unreasonable to believe that the mathematical power inherent in numbers somehow transcends the strength (or weakness) of their connections with properties they are presumably measuring. It is equally unreasonable to assume that numbers assigned to reified concepts (such as "self-esteem" and "principal leadership") cannot possibly represent anything meaningful.

The ultimate arbitrator of the meaning of measurement is experience. This is why the notions of reliability and validity were invented. To the extent that the numbers (i.e., measurements) can be replicated, they are reliable. More importantly, to the extent that they serve the measurement

purposes intended, they are valid. The key word here is purpose. Depending upon the purpose, the evidential arguments for reliability and validity may differ.

Consistent with the primary objective being espoused here for collecting and using data--to inform and stimulate staff inquiry--evidence must be acquired first for the content validity and second for the credibility of information. Content validity is a familiar concept to most people who construct achievement tests. It is essentially a rational process of matching item content to instructional content, i.e., the course (or unit or lesson) objectives and the skills, knowledge, and understandings implied by those objectives. Likewise, the items in surveys, interviews and observation schedules must be matched to the content they are designed to assess. A concept such as "staff cohesiveness" may be of important concern to the organizational work environment in a school. But within the context of that school, a concept like "staff cohesiveness" needs to be scrutinized for its various meanings. Does it represent support? friendliness? trust? respect? morale? commitment? unity? etc.?

The term "credibility" as a type of validity is used here to represent the degree to which information augments, stimulates, provokes or otherwise facilitates meaningful communication between staff in the inquiry process. Assessing credibility can only be done by the staff during the course of inquiry. Suppose the issue of increasing parent involvement in school affairs is under deliberation. Suppose the results of a parent survey question regarding the reasons they have for feeling disenfranchised from school affairs are added to the information being brought to bear on the inquiry. If the results lead to a "so what?" response or an inability to relate the data to the pertinent issue, it us unlikely that the item will

be included in further surveys. On the other hand, if the results can be seen to further the dialogue, the item has proved credible. (See example below for Nuvo Elementary School). The point here is that issues pertaining to the validity of information are not exclusively those facing psychometricians. These issues must be continually addressed as people attempt to make sense out of the information collected.

This leads, then, to the kinds of data analyses likely to be of use to staff for facilitating their inquiry about the conditions of their schools and the possible avenues for improvement and change. It is unlikely that the results of multivariate analyses such as multiple regression, covariance structure modelling, and the like, will be of use in this effort. Obviously, such analyses can be useful for research purposes in studying complex relationships between variables and how they change over time. Yet, they lack the immediacy and simplicity required to inform staff deliberation on specific problems and issues.

But do not confuse simplicity with simple-mindedness. The myth that complex numerical manipulations somehow yield better, more "scientific" results has no place in the rationale for a "people-oriented" information system. The power of a single percentage should not be underestimated as a stimulus for facilitating and advancing the dialogue. A brief summary of the events of a staff meeting at one elementary school should illustrate how simple tabulations of data can facilitate staff inquiry.

> A continuing issue at Nuvo Elementary School concerned curriculum balance and the role of content area specialists. Prior to this meeting it had been suggested that staff really didn't know how much time was being devoted to various subject areas in each grade level. As an approximation to this bit of missing knowledge, staff responded to a question asking for the approximate, weekly number of hours allocated to a number of subject area divisions. Since teachers at this school taught in 10 teams (of 2-3 teachers each) spread across

grade levels, teams (rather then individuals) reached consensus on this item; and the 10 team responses were arrayed and presented as input to the staff meeting.

Preliminary discussion began around the nature of the item itself and the difficulty of cutting up the hours of the day to correspond to the subject matter categories. Thus, to some extent, the hours indicated by teams were not realistic. Yet, all teams felt that the general patterns in the data "rang true." These patterns were two-fold: (1) There were extreme imbalances in the time allocated to different content areas and (2) The nature of those imbalances were very different in different grade levels and teams. These observations fed back nicely into the major thrusts of the issue. First, what ought be the curricular balance between subject contents, should it be different at different grade levels, and, if so, how can balance be maintained in the continuum from one grade level to the next?

But the original criticism of the survey question really highlighted a second thrust. How separable are content areas, and to what extent do we (and should we) teach subjects (e.g., reading, math and science) together as they naturally occur within a thematic unit (e.g., ecology)? This query, of course, raised the role of content specialists as being "outside class" resources versus being regular members of a team with special talents that can be shared with other staff as needed.

This is enough of a scenario to make the point regarding how simple (not simplistic) survey results can facilitate inquiry. It should also be noted that content validity and credibility issues were implicit in this scenario and could be made explicit during the course of the inquiry.

Responsibility vs. Accountability

Teachers, students, parents, etc. have been "burned" far too often by mindless exercises of data collection (usually surveys), the results of which never see the light of day or, if they do, are presented in a useless form, in a useless setting, and/or at a useless time. Even worse, however, are the scars left from using information as a weapon, often under the rubric of accountability. Most often, the arsenal is composed of test score information, but I have verified "war stories" where other types of information (e.g., teacher educational values/beliefs; instructional practices; etc.) have been used against people (e.g., RIF decisions).

I find this attitude towards and use of information to be intolerable. It is not surprising, then, that it is wholly incompatible with the view being espoused here of information systems as an adjunct to and by-product of a school-focused inquiry and change process. From this perspective, "evaluation is no longer a tagged-on prerequisite; it is intrinsic to the reflective process and is engaged in by all involved. "Accountability" is recast to a higher ethical level; people become accountable to one another rather than to what are often seen as arbitrary, outside interests. Responsibility would seem to be a more reasonable term to characterize this view of inquiry and the use of information.

Summary

There are at least three issues that must be taken seriously by information system advocates if the systems are to be used by and for people instead of against them:

1. Intimately involving people in developing the purposes, contents and uses of the systems.
2. Developing timely, relevant and straightforward techniques for bringing information to bear upon practice.
3. Creating a climate of mutual trust and responsibility for generating and using information.

Footnote

1. The following reports provide a more thorough discussion of all the concepts embedded in this paper: Sirotnik, 1984; Sirotnik and Burstein, 1983; Sirotnik and Oakes, 1981 and 1983.

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DATA DOMAINS

AGGREGATION LEVELS	Data Sources:	Personal (Individual) C	Personal (Individual) A	Personal (Individual) M	Instructional (Classroom) C	Instructional (Classroom) A	Instructional (Classroom) M	Institutional (School) C	Institutional (School) A	Institutional (School) M	Societal (Schooling) C	Societal (Schooling) A	Societal (Schooling) M
Individual	Students												
	Teachers												
	Administrators												
	Parents												
Class	Students												
	Teachers												
	Administrators												
	Parents												
	Classroom												
School	Students												
	Teachers												
	Administrators												
	Parents												
	Classrooms												
	School												
District	Students												
	Teachers												
	Administrators												
	Parents												
	Classrooms												
	Schools												
	District												

Data Categories:

C = Circumstances

A = Activities

M = Meanings

Figure 1

The Schooling Terrain